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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,737	04/25/2005	Dario Calogero Castiglione	11016-0037	9020

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CLARK & BRODY
1090 VERMONT AVENUE, NW
SUITE 250
WASHINGTON, DC 20005

EXAMINER	
LEE, BENNY T	
ART UNIT	PAPER NUMBER
2817	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,737	CASTIGLIONE ET AL.	
	Examiner	Art Unit	
	Benny Lee	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-6 and 14-16* is/are allowed.

6)☒ Claim(s) *7-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *22 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The substitute specification filed 22 November 2006 has been reviewed, found acceptable and has replaced the original specification. The following objections pertain to the substitute specification:

The disclosure is objected to because of the following informalities: Note that subheadings should be provided to delineate the different portions of the specification (e.g. Background, Summary of the Invention, etc). Paragraph [0005], fourth line therein, note that --a -- should be inserted prior to "waveguide". Paragraph [0011], note that the reference numbers and labels associated with the "ROSEN et al" reference should be deleted (i.e. "24", "12", "x", "n", etc). Paragraph [0028], note that "TE_{11}" should be rewritten as --$T\underline{M}_{11}$-- for a proper characterization of the described mode. Paragraph [0039], note that --(see FIG. 2)-- should follow "22" for an appropriate characterization. Paragraph [0051], fourth line therein, note that "material18" should be separated for grammatical correctness. Paragraph [0096], note that a --,-- should be inserted after "10^{18}" and "a" (i.e. prior to "costly") should be deleted for grammatical correctness. Paragraph [0099], note that "16" should be rewritten as --16a, 16b-- for consistency with the drawing figure designations. Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following reference labels need a corresponding description in the specification's description of that figure: Figs 3, 4 (13, 15, 16); Fig. 3 (10, 14); Fig. 4 (17, 20); Fig. 8, (I, II, III); Fig. 12a, (1, d); Fig.12b, (x, y, z); Figs. 15, 16a, 16b, the descriptive wording therein (e.g. "waveguide model", etc; Fig. 17, the descriptive wording therein, such as the "Dark States" and the various "N-states". Appropriate correction is required.

Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 9-13, note that it is unclear which one "mode" is intended by the recitation of "said mode". Clarification is needed.

In claim 11, note that it is unclear how "a field" is intended to be related to the earlier recitation of "its field", as recited in independent claim 7. Clarification is needed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7, 8, 9, 10, 11, 12, 13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Hadjicostas et al paper (cited by applicants').

Hadjicostas et al (Fig. 1) discloses a waveguide phase shifter/attenuator comprising: a waveguide; a photo-responsive material (Si slab of thickness d_2) spaced from an internal wall (e.g. wall of dimension "b") of the waveguide; an external light source emitting light, which passes through an aperture in the internal wall and eventually impinge onto a surface of the photo-responsive material (page 657, right hand column, 6^{th} to 9^{th} lines therein). As evident from Fig. 4, it can be seen that various modes of propagation provide various degrees of phase shift or attenuation over a range of plasma density or carrier concentration including a range from 10^{14} cm^{-3} to 10^{16} cm^{-3}. As described at page 657, right hand column, last full paragraph therein, the propagation constant of electromagnetic waves within the waveguide is a function of "complex

refractive index profiles" (i.e. complex refractive index is a function of complex dielectric constant, as would have been known to those of ordinary skill in the art). Furthermore, as evident from Fig. 3, the electromagnetic field amplitude profiles therein shows the presence of such field amplitude profiles being in the air region of the waveguide as well as in the photo-responsive material region. For example, as depicted in Fig. 3, MODE 1 provides an amplitude profile in which the field amplitude profile in the photo-responsive material region is relative smaller than the field amplitude profile in the air region of the waveguide. Alternatively, note that MODE 3 in Fig. 3 depicts the field amplitude profile in the photo-responsive material region to be relatively greater than the field amplitude profile in the air region of the waveguide. Furthermore, for MODE 3, the air region field amplitude profile is substantially flat, thereby placing the air region of the waveguide in a cut-off state for propagation of waves therein. Additionally, note that the field amplitude profile of MODE 3 within the photo-responsive material region includes a single peak profile, which is representative of a TE_{10} mode type of field amplitude profile, as would have been known to those of ordinary skill in the art. Similarly, for MODE 1, the field amplitude profile includes two opposite peaks, which is representative of a TE_{20} mode, as would have been known to those of ordinary skill in the art.

Applicant's arguments with respect to claims 1, 2, 14; 7, 8, 12 have been considered but are moot in view of the new grounds of rejection.

Claims 1-6, 14-16 are allowable over the prior art of record.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee

BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817